

Harmonics in power systems

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Abstract

The greatest generators of harmonics in three-phase industrial power systems appear to be AC and DC motor drives, with the DC drive contributing to poor system power factor and the AC drive contributing the higher magnitude of harmonics per kilowatt output. A simple single-phase power circuit is used to demonstrate the effects of the harmonic current components generated by six pulse power converters on the AC voltage waveform. Harmonic mitigation using an AC line reactor is shown, and reactive power compensation and reduction of the fifth-harmonic component by means of a tuned filter is simulated. A review of US and UK current standards is given